



Title: QUALITY OF SERVICE RESOURCE MANAGEMENT APPARATUS AND METHOD FOR MIDDLEWARE SERVICES

Inventor(s): Guijun Wang, et al

Serial No. 10797,523

Atty. Ref.: 7784-000719US

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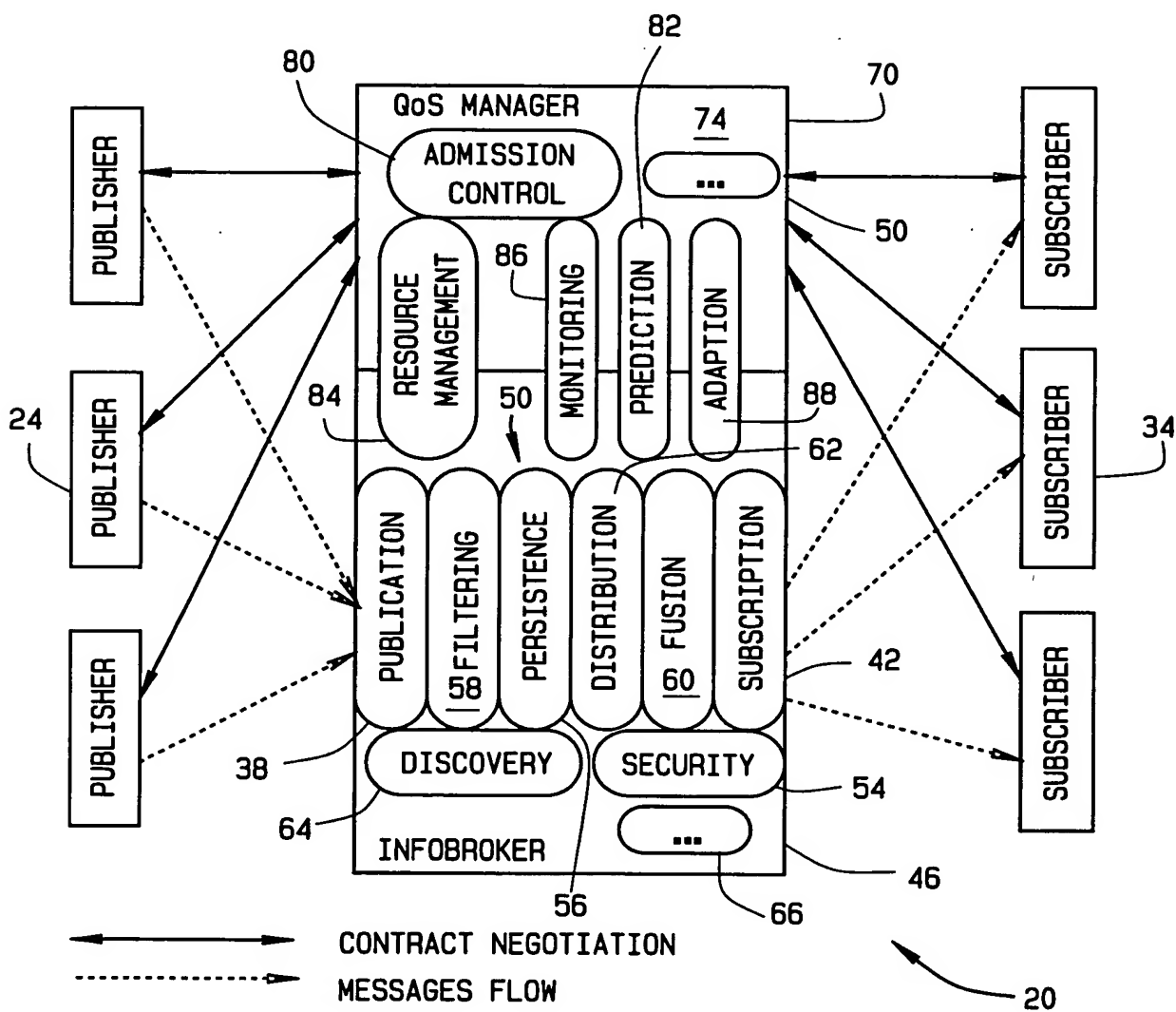
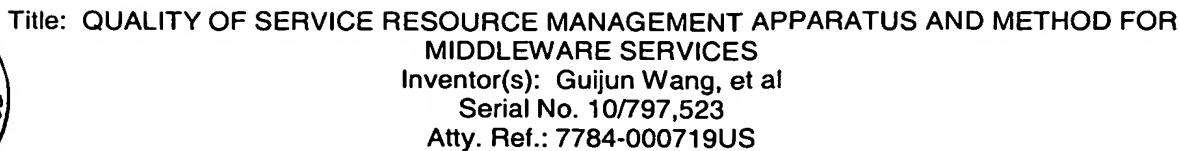


FIG. 1





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```
<?xml version="1.0"?>
<!DOCTYPE qos-message SYSTEM "QoSMessage.8.dtd">
<qos-message>
  <profile>
    <client name='Pub1' role='publisher'/>
    <topic>Logistics</topic>
    <content-type>text</content-type>
  </profile>
  <performance>
    <volume-rate unit='second'>100</volume-rate>
    <pay-load volume='32' unit='kilobyte'/>
  </performance>
  <reliability>
    <delivery guaranteed-delivery='yes'/>
    <criticality level='red'/>
  </reliability>
</qos-message>
```

FIG. 3



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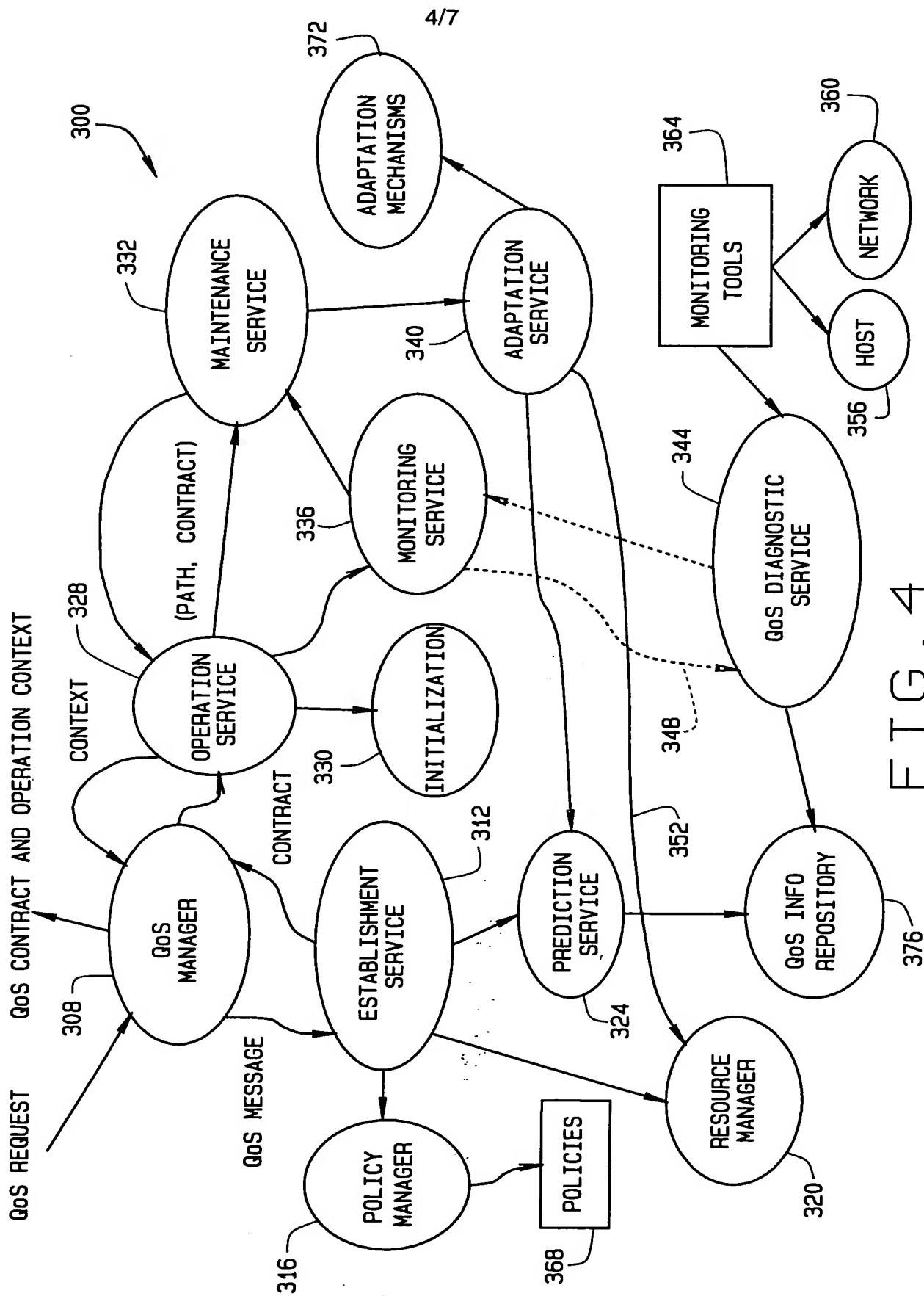


FIG. 4



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```
408 public interface QosManager {  
412     QoSContract establishQoSContract (String clientID, String qosMessage)  
416         throws QosManagerChannelException;  
420     QoSContract reviseQoSContract (String clientID, String qosMessage)  
        throws QosManagerChannelException;  
        void agreeQoSContractOffer (String clientID, QoSContract contract)  
        throws QosManagerChannelException;  
        void abortQoSEstablishment (String clientID, QoSContract contract)  
        throws QosManagerChannelException;  
}
```



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FIG. 5



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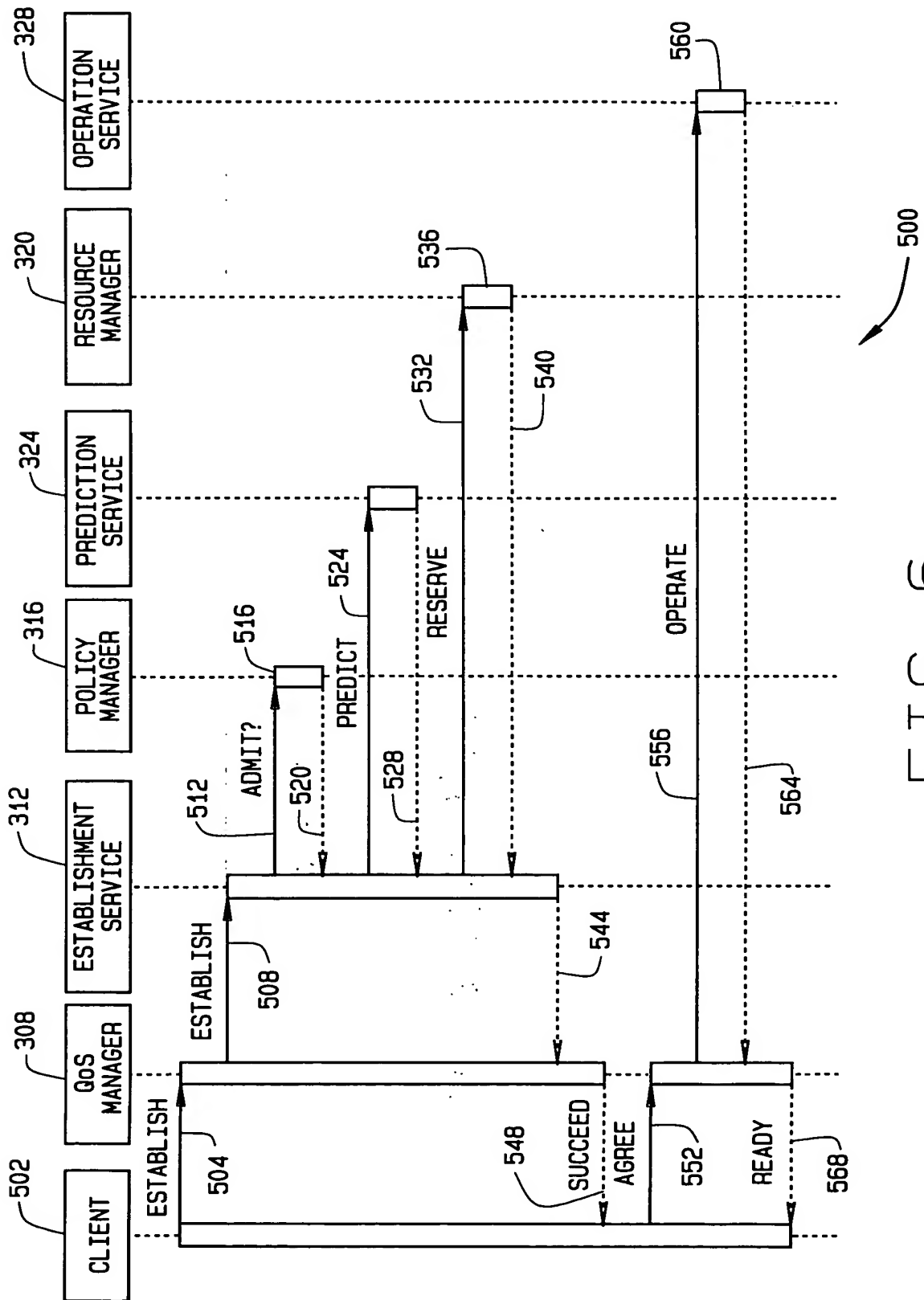


FIG. 6



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```
public abstract class Resource {  
    protected boolean sharable;  
    604 public static Resource create(QoSContract contract, Element config, Class clazz) throws ...;  
    644 public void attach(QoSContract contract) throws ResourceException;  
    608 public void configure(QoSContract contract, Element config) throws ResourceException;  
    public void reconfigure(QoSContract contract, Element config) throws ResourceException;  
    616 public void cancel(QoSContract contract) throws ResourceException;  
    612 public void commit(QoSContract contract) throws ResourceException;  
    628 public void release(QoSContract contract) throws ResourceException;  
  
    620 public void activate() throws ResourceException;  
    624 public void freeze() throws ResourceException;  
  
    632 public Prediction predict() throws ResourceException;  
    636 public void register(QoSContract contract, Monitor monitor) throws ResourceException;  
    640 public void unregister(QoSContract contract, Monitor monitor) throws ResourceException;  
    public void adapt(QoSContract contract, Adaptation adaptation) throws ResourceException;  
}
```

FIG. 7